

REMARKS

Priority

Examiner questioned the priority claim of this application as a divisional application of Patent Application Serial No. 10/161,296, now US Patent 6,652,719 B1, because this application adds and claims additional disclosure not presented in the prior application. By a telephone conversation with the Examiner, Examiner advised the Applicant that the preliminary amendments on paragraphs [0036] and [0045] presented new matter. Applicant respectfully traverse this finding. On [0036], the substitution of an inert gas or nitrogen for air is well known in the field and are not usually done because nitrogen or inert gas are more expensive than air. Also, in the absence of a vacuum pump to draw the separated gas, if air is allowed to enter the first container, the separated gas will be diluted by the entering air. The main concept is that of allowing air to enter the first container when a vacuum pump is used and this was disclosed in the prior application. The substitution of air for other gases are just common knowledge and the dilution of the separated gas by commingling of the incoming air is plain common sense. Consequently, this was not claimed either because it is known or it is very obvious.

On paragraph [0045], the cleaning procedure, that of switching the gas-liquid separator connected to the anode chamber, from the anode chamber to the cathode chamber and vice-versa, was disclosed in the prior application (see col. 5, lines

17-26 and col. 12 lines 53-63 of US Patent 6,652,719 B1). This is the supporting disclosure for claims 77 and 84 and there are no new matter added or claimed. Any additional language added by way of the preliminary amendment merely dealt with the situation when a user cleans the electrolysis cell by reversing the polarity of the chambers, the anode chamber becoming the cathode chamber and vice-versa, which is one of known the methods of cleaning an electrolysis cell. Applicant merely wants to state the obvious that if the electrolysis cell is cleaned by this known method of reversing the polarity of the chambers, then there is no need to switched the gas-liquid separators because the gas-separator that is originally connected to the anode chamber automatically becomes connected with the cathode chamber without any switching required. Looking at Figure 1, on the cleaning procedure proposed here, the gas-liquid separator connected to the anode (one above the (+) chamber) should be switched in position with the gas-liquid separator connected to the cathode chamber (one above the (-) chamber. However, if the user cleans the electrolysis cell by changing the polarity of the chambers which is a common practice, then Applicant merely state the obvious that in this case, no switching of the gas-liquid separators is required for cleaning because if the user changes the anode (+) chamber into a cathode (-) chamber, then the gas-liquid separator that is connected to the anode chamber (+) automatically becomes connected to a cathode chamber (-), which has the same end result as that proposed herein for cleaning the

gas-liquid separator. Please note that claims 77 and 84 do not claim the situation when cleaning is done by switching the polarity of the electrolysis chambers because this is known. Based on the above explanation, Applicant believes that no new matter was added and reclassifying this application to one of a continuation-in-part is not merited. Applicant is willing to delete the additional languages added on the specification on paragraphs [0036] and [0045] if the Examiner does not find the above explanation acceptable but applicant will not cancel claims 77 and 84 because it is new matter because the supporting specification as mentioned above was disclosed in the parent application and printed in the ensuing patent.

Claim Rejection - 35 USC s.112

Claims 46 and 65 were rejected as being indefinite. Claims 46 and 65 were amended by cancelling the word "electrolyzed" which lacks an antecedent basis.

Claim Rejection - 35 USC s.102

Claims 36, 40, 42, 52, 53 and 56 were rejected under 35 USC 102(e) as being anticipated by US patent no. 6,454,835 issued to Baumer. Examiner is right in stating that Baumer's invention for separating gas from liquid included at least two containers, a first container for separating gas from a gas-liquid mixture 16 and a second container for receiving gas reduced or gas free liquid 14, the first container having an inlet port for the gas-

liquid mixture 1, an outlet port for the gas reduced or gas free liquid at a location below the level of gas in the first container, a separate gas outlet port 22, and a volume above the outlet port for the gas reduced or gas free liquid enough to hold a volume of the separated gas prior to discharge to the gas outlet port 5. However, Examiner misinterpreted the role of the second container in Baumer. The second container in Baumer merely receives the gas free liquid. It does not play a major role in separating gas from the gas-liquid mixture. In the claimed invention, gas is separated from the gas-liquid mixture through the difference between the pressure exerted by the volume of liquid in one (first) container and the pressure exerted by the volume of liquid in the other (second) container. To achieve this without the aid of external devices such as the vacuum pump, level sensor, etc., one container necessarily has to have a height taller than the other container and a larger volume capacity to hold a larger volume of liquid than the other container as shown in Figs. 2, 2A, 2B, 3 and 3A. This requirement does not exist in Baumer. The volume capacities of the first and second container in Baumer, are the same as shown in Figs. 2, 4, 5, 6 and 7. There are no disclosures in Baumer requiring the container 14 receiving the gas reduced or gas free liquid to have a larger volume than that found in the gas-liquid mixture 16. In Baumer, the relationship of one container 16 with the other container 14 is dictated by the different means of maintaining the pressure difference across a filter.

In Baumer, the filter plays the major role in separating the gas from the gas liquid mixture. It adopts the bubble point principle where separation is achieved by a pressure difference maintained across the filter. As long as the pressure difference is below the critical pressure difference or the bubble point of the filter (each type of filter have their own bubble point which can be determined experimentally), air or gas will not be able to pass through the filter. A lengthy discussion of this main concept is disclosed from col. 2, lines 66-67 through col. 3, lines 1-56, with the bubble point principle explained in col 3, lines 5-12. The claimed invention does not use a filter to separate the gas from the gas-liquid mixture and likewise does not employ the bubble point principle. As stated above, the gas separates by a combination of the tendency of gas to rise upward which is facilitated by the greater pressure exerted by the volume of liquid in a second container in communication with the volume of the gas-liquid mixture entering a first container such that gas is forced upwards on a top space above the gas-liquid mixture on the first container for eventual discharge or collection at a port on top of the first container while the gas reduced or gas free liquid enters the second container. An explanation of the principle used by the claimed invention is disclosed in the parent application on paragraph [0038] resulting in col. 10, lines 35-67 of US Patent 6,652,719 B1. The other embodiments of the claimed invention provides other methods of collecting or facilitating the collection of the gas from the

first container such as the vacuum pump connected at the gas outlet port of the first container for facilitating the removal of the gas or the introduction of level sensors/vacuum pump combination inside the first container which obviates the need of the liquid in the second container to exert a certain pressure on the liquid of the first container to prevent the gas from entering the second container which is detailed in paragraphs [0035] and [0036] of the parent or prior application (col. 9, lines 1-67 through col. 10, lines 1-34 of US Patent 6,652,719 B1). There are no filters involved in the separation of the gas from the gas-liquid mixture in the claimed invention. Consequently, the claimed invention does not employ the bubble point principle which is applied to filters. The Examiner should not confuse the membrane 8 separating the anode from the cathode chamber of the electrolysis cell and the air filter 35 which is merely used to prevent debris from entering the container 32. These membranes are not directly involved in separating gas from the gas-liquid mixture.

Filters are also not used in the claimed invention to maintain the separation of the gas from the gas reduced or gas free liquid. In the claimed invention, recombination of the gas with the gas-liquid mixture is prevented by drawing the evolved gas and physically transferring this to a third container (gas receiving container) not in communication with the container storing the gas reduced or gas free liquid or absorbing/adsorbing the evolved gases. The claimed invention further proposes

reprocessing the gas to produce other products, thereby making it impossible to recombine this with the gas free or gas reduced liquid. These processes of preventing the recombination of the gas with the gas free liquid are claimed in claims 46,55,65,74,79,85 and 86.

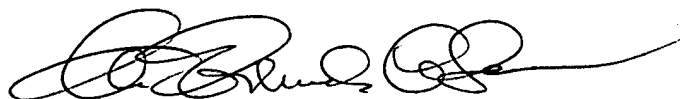
Further, use of a filter in separating gas from a gas-liquid mixture originating from a charged chamber, such as the anode and the cathode chambers of an electrolysis cell, may not be advisable. A charged gas-liquid mixture, for example, acidic water with positively charged hydrogen ions $[H^+]$ from the anode chamber and alkaline water from the cathode chamber containing hydroxide ions $[OH^-]$ can potentially react with the components of the filter or leach out undesirable components from the filter material or from the bonding materials used in the manufacture of the filter upon contact of these charged liquid with the filter media. A use of the gas-liquid separator herein is to provide slightly charged electrolyzed water which has been published to be beneficial in treating some human disorders. It would not be nice to have these leached compounds with the drinking electrolyzed water.

To anticipate a claim for patent under section 102, a single prior source must generally contain all of the essential elements of the claim. W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ at 313. Here, the reference and the claimed invention differ at the very core of the invention, that of the method for separating gas from the gas-liquid mixture as forwarded above. The rejection of

the claimed invention under 35 USC s. 102(e) is therefore improper.

In view of the above remarks, it is respectfully submitted that the claims are in condition for allowance. In the event that there are any problems which can be expedited by telephone conference, the Examiner is invited to telephone the Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Maria Erlinda C. Sarno', written over a horizontal line.

Maria Erlinda C. Sarno
Attorney for Applicant
Registration No. 37,436

P.O. Box 1023
Artesia, CA 90702
562-402-0418